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BEFORE THE ARIZONA CORPORATION COMMISSION

KRISTIN K. MAYES

Chairman

GARY PIERCE

Commissioner

PAUL NEWMAN

Commissioner

SANDRA D. KENNEDY

Commissioner

BOB STUMP

Commissioner

Arizona Corporation Commission

DOCKETED

MAR 17 2010

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IN THE MATTER OF THE APPLICATION  
OF ARIZONA PUBLIC SERVICE  
COMPANY FOR APPROVAL OF ITS  
PROPOSED RESIDENTIAL NEW  
CONSTRUCTION PROGRAM ENERGY  
EFFICIENCY MEASURE - ENERGY STAR  
PLUS

DOCKET NO. E-01345A-09-0332

DECISION NO. 71503

ORDER

Open Meeting  
March 2 and 3, 2010  
Phoenix, Arizona

BY THE COMMISSION:

FINDINGS OF FACT

1. Arizona Public Service Company ("APS" or "the Company") provides electric service within portions of Arizona, pursuant to authority granted by the Arizona Corporation Commission ("Commission").

2. APS provides service in the counties of Apache, Cochise, Coconino, Gila, La Paz, Maricopa, Navajo, Pima, Pinal, Yavapai and Yuma. The Company services over 1.1 million customers in Arizona, including approximately 978,000 Residential and 119,000 Commercial customers.

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3. On July 15, 2009, Arizona Public Service Company ("APS" or "the Company") filed an application designed to meet certain provisions of the Proposed Settlement Agreement (the "Settlement Agreement") in APS' most recent rate case.<sup>1</sup>

4. The APS 2010 Energy Efficiency Implementation Plan ("the Implementation Plan") sets out the programs and measures by which APS plans to meet the energy savings goals agreed upon in the Settlement Agreement. Most of these program elements were approved in the December 2009 and January 2010 Open Meetings, as listed herein, with some modification and/or amendment. The new Energy Star Plus component of the Residential New Construction Program is the last Implementation Plan program element remaining for review and action by the Commission.

5. On June 29, 2009, in compliance with Decision No. 70666, APS filed an application detailing its proposed Energy Star Plus measure. This measure would create an additional tier in its existing APS Residential New Construction Program. The Energy Star Plus component would provide higher incentives for builders who achieve a second, and higher, level of energy efficiency in their newly constructed residential homes. In making this higher level of efficiency eligible for incentives, the Residential Program is moving toward the goal of net zero energy homes.

Summary of Commission Actions Regarding the Implementation Plan

6. In Decision No. 71444 (December 23, 2009), the Commission voted to approve the following four program elements from the Implementation Plan, as modified and amended.

Residential

- Low income Weatherization (existing program; multiple enhancements)
- Appliance Recycling (new program)

Non-Residential

- Schools program (existing program; increase in customer cap)
- Self Direction (new portfolio component)

<sup>1</sup> The Settlement Agreement was filed on June 12, 2009, in the APS Rate Application Docket (Docket No. E-01345A-08-0172) and subsequently approved in Decision No. 71448.

7. In Decision No. 71460 (January 26, 2010), the Commission voted to approve the remaining program elements (listed below), as modified and amended, with the exception of the Residential New Construction Program.

Residential

- Consumer Products (existing program; three new measures)
- Residential Existing Homes (existing program; adds Home Performance enhancement)

Non-Residential

- Non-Residential New Construction (existing program; adds second performance tier)
- Non-Residential Customer Repayment Financing Program (new portfolio component)
- Non-Residential Existing Facilities program (no new measures or significant changes; impacted by other changes to the portfolio)

Overall Portfolio

- Demand-Side Management Adjustor charge (recovery for program costs)
- Performance Incentive
- Budget increases for existing programs.

Settlement Agreement Demand Side Management ("DSM") Requirements

8. The DSM provisions of the Settlement Agreement required that the Implementation Plan include a residential high performance new home program element with a second tier of performance and a higher financial incentive, which APS was to file with the Commission on or before June 30, 2009.

Scope of Review

9. Staff has not re-evaluated the cost-effectiveness of the existing program, since that was previously determined by Staff in another docket.

**RESIDENTIAL NEW CONSTRUCTION PROGRAM**

10. Existing Program Description. The current Residential New Home Construction program offers incentives to builders to construct energy efficient homes. Program standards track

1 with the standards of the national Environmental Protection Agency ("EPA")/Department of  
2 Energy ("DOE") Energy Star Homes program. (The DOE Energy Star Homes program currently  
3 requires energy efficiency that is 15 percent higher than the 2006 International Energy  
4 Conservation Code ("IECC").) The program focuses on the whole building approach to improving  
5 the energy efficiency of residential homes and includes testing to ensure that participating homes  
6 meet program standards. Components of the existing program include training in building science  
7 for participating builders and education for prospective homebuyers about the benefits and features  
8 of energy efficient homes.

9 11. Proposed Program Enhancements. The proposed new measure is directed toward  
10 the construction of residential homes (both single-family homes and low-rise townhouses and  
11 condos) that meet an energy efficiency standard that is 30 percent above the 2006 IECC.

12 12. The national and state Energy Star programs, including the proposed Energy Star  
13 Plus component, are performance-based. Builders can choose from a variety of energy efficiency  
14 upgrades in order to meet the performance standard. The types of enhancements used by builders  
15 to meet the new, higher, standards are likely to include the following measures:

- 16 • All upgrades required to meet current Energy Star Homes standards;
- 17 • HVAC ductwork run through air conditioned, or semi-conditioned, areas of the  
18 home, rather than through hot attic spaces. (Running HVAC ductwork through air  
19 conditioned, or semi-conditioned spaces avoids temperature extremes and allows  
20 the system to work more efficiently);
- 21 • Vinyl frame low E windows with a low Solar Heat Gain Coefficient ("SHGC").  
22 (The SHGC value indicates how well a window blocks the transmission of heat  
23 resulting from sunlight. The SHGC is expressed as a number between 0.00 and  
24 1.00. The lower the SHGC of a window, the more efficiently it blocks the  
25 transmission of heat.)<sup>2</sup>
- 26 • High efficiency air conditioning equipment, typically with a 15 Seasonal Energy  
27 Efficiency Ratio ("SEER") or higher. (SEER ratings reflect the ratio of cooling  
28 output to kWh used, and measure efficiency over an entire cooling season);

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<sup>2</sup> A U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy report on SHGC windows states that dual-glazed windows with a SHGC of 0.40 or less can result in cooling energy savings of up to 30%, or more.

- Higher efficiency water heaters. (If the builder chooses to upgrade the water heater in dual fuel homes, the builder would typically upgrade the gas water heater to a sealed combustion higher efficiency unit. Builders may also upgrade to solar water heaters); and
- High efficiency lighting and appliances.

13. Performance Testing. As with the current Residential New Homes Construction program, participating homes would go through an energy efficiency rating and performance testing process to ensure that homes are meeting required performance standards (the Home Energy Rating System or "HERS").<sup>3</sup> The HERS scoring system, also used by the national Energy Star program, involves an energy analysis of a home's design, followed up by work with the builder and on-site inspection to ensure that homes meet performance standards. The HERS Index scores homes on a 100-point scale, with each one-point decrease representing a 1 percent reduction in energy consumption, so that more efficient homes receive lower scores. For example, the current Residential New Construction and national Energy Star Homes programs both require a HERS score of 85, while the proposed new Energy Star Plus component would require a HERS score of 70. (As another example, a home built to meet the current 2006 IECC would score 100 on the HERS Index, while a zero net energy home would score a HERS Index of zero.)

14. Net Zero Energy Homes Goal. The U.S. Department of Energy ("DOE") developed the Building American Program in order to work toward net zero energy homes, meaning homes that produce as much energy as they use. The Building America Program goals include reduced whole house energy use, reduced construction time and waste, improved indoor air quality and comfort, and clean on-site power systems. Net zero energy Homes are not currently cost-effective, or widely marketable, but the DOE Building America Program enables ongoing improvements geared toward eventual zero net energy performance. (The DOE Builders Challenge goal is to achieve marketable net zero energy homes by 2030.)

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<sup>3</sup> The HERS Index was developed by the Residential Energy Service Network (RESNET).

1           15.     APS states that the national Builders Challenge program is “a reasonable path for  
2 builders in Arizona to move towards constructing net zero energy homes.” In the APS service  
3 territory builders would be able to both participate in the Energy Star Plus program and to utilize  
4 current APS Solar Homes solar and renewable energy rebates, resulting in higher savings than  
5 would be available from either program alone. The programs would remain separate for  
6 administrative purposes, but would be marketed to builders as a combined program whenever  
7 possible. (APS included a Builder’s Guide with its June 29, 2009, filing. The Guide promotes  
8 builder participation in both the Energy Star and Solar Homes programs.)

9           16.     Pending Revisions to Energy Star Program Standards. The national Energy Star  
10 Home program is currently planning<sup>4</sup> to increase standards, to reflect the anticipated widespread  
11 adoption of the 2009 IECC (which will replace the 2006 IECC). The current draft for the new  
12 national Energy Star standard indicates that it would be at least 15 percent above the 2009 IECC.  
13 Once the new Energy Star standard is in place APS plans to increase the standards for the second  
14 tier. The amount of increase has not yet been set, but will be based in part on the final version of  
15 the new national Energy Star Homes standard.

16           17.     The table below sets out the energy efficiency levels in comparison to the current  
17 2006 IECC. Once the national standard changes, improvements in energy efficiency would be  
18 measured against the 2009 IECC instead.

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Level	% Improvement Compared to 2006 International Energy Conservation Code ("IECC")
Current Standard Home	0%
Current Energy Star Home (Existing Program)	15%
2009 International Energy Code Construction	15%
Energy Star Plus/DOE Builder's Challenge	30%

24           18.     Participation; Impact of Housing Downturn. With respect to the existing  
25 Residential New Construction program, APS reported that it had paid incentives on 5,744 homes  
26 since the start of the program in 2006. (DSM Semi-Annual Progress Report for the period January  
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28           <sup>4</sup> The new standard is scheduled to take effect in 2011, but could be delayed. During the last update of the Energy Star  
standard the effective date was changed, twice, to address stakeholder input.

through June 2009.) During the first half of 2009, APS paid 695 incentives, with 21,742 lots signed up to participate in the program. (However, nine participating APS builders declared bankruptcy during this period, removing 708 lots previously committed by the builders from program participation). APS states that, although only 10,000 home permits are predicted for the Phoenix metro area in 2009 (down from 65,000 in 2005), some builders are looking to energy efficiency and renewables to differentiate their homes from others on the market. APS believes that, initially, the Energy Star Plus tier would be a niche market, but that it would encourage other builders to consider the Energy Star Plus tier.

19. Budget Allocations. The first table, below, lists the budget allocations for the proposed new Energy Star Plus component only. The second table lists the budget allocations for the entire Residential New Construction Program, meaning the budget for both the existing program and the proposed new Energy Star Plus component.

Budget: Residential New Construction (Proposed Energy Star Plus Component)	
Rebates and Incentives	\$250,000
Training and Technical Assistance	\$40,000
Consumer Education	\$10,000
Program Implementation	\$30,000
Program Marketing	\$50,000
Planning and Administration	\$20,000
Program Total	\$400,000

Budget: Residential New Construction (Total: Existing Program and Energy Star Plus Component)	
Rebates and Incentives	\$1,650,000
Training and Technical Assistance	\$99,000
Consumer Education	\$19,000
Program Implementation	\$199,000
Program Marketing	\$352,000
Planning and Administration	\$99,000
Program Total	\$2,418,000

20. Incentives. The incentive for meeting the existing Energy Star Homes program standard is \$400 per home, while the incentive for meeting the new, higher, Energy Star Plus

standard is \$1,000. The table below sets out the two standards, along with the estimated incremental costs of meeting the two standards.

Residential New Constructions Home Program Measure	Estimated Cost	Incremental	Incentive
At least 15% more efficient than 2006 IECC		\$750	\$400 per home
At least 30% more efficient than 2006 IECC		\$3,500	\$1,000 per home

21. Estimated Savings: Energy. The table below lists the projected energy savings for homes built in 2010 to meet current standards, along with the projected savings for homes built to meet the higher standards of the proposed Energy Star Plus component. Lifetime kWh savings, per home, for the current New Home Construction program are an estimated 58,176 kWh. With average per-home lifetime savings of 93,024 kWh, the Energy Star Plus component would generate significantly larger energy savings per home:

Measure	Number of Homes	Peak Demand kW Saved	Total kWh Saved	Estimated Lifetime kWh Savings Per Home
Energy Star	3,500	5,000	203,616,000	58,176
Energy Star Plus	250	497	23,256,000	93,024
Total	3,750	5,497	226,872,000	n/a

#### Staff Analysis and Recommendations on Proposed Program Enhancements

22. Cost-Effectiveness. Based on projected savings and costs for the proposed Energy Star Plus component, Staff estimates a benefit-cost ratio of 1.15. (This benefit-cost ratio does not include savings or costs from the Company's companion Solar Homes renewables program.) A benefit-cost ratio of 1.64 is above the benefit-cost threshold of 1.0, and indicates that this program is cost-effective, even before the environmental savings are taken into account. Staff has recommended that incremental costs not be reduced by federal tax credits for purposes of determining program cost-effectiveness or for purposes of determining the net benefits on which

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the Performance Incentive is based. This limitation should apply to all programs and measures included in the APS DSM Portfolio. The projected environmental savings are cited below.

23. Projected Savings: Environmental. The table below lists the projected environmental savings for both tiers of the Residential New Construction program. The savings are based on the projected kWh savings of 226,872,000 accrued over twenty years:

Emissions	Projected Environmental Savings
SOx	976 lbs
NOx	39,022 lbs
CO2	208,041,624 lbs
PM10 <sup>5</sup>	5,377 lbs
Water	52,861,176 gallons

24. Reporting Requirements. Staff has recommended that APS continue to report on the Residential New Construction program in its semi-annual filing with the Commission, or in any succeeding form of report ordered by the Commission. Staff has also recommended that the report include information and data on the new Energy Star Plus program component, if the component is approved by the Commission. Reporting for the new Energy Star Plus component should include information on progress toward the goal of net zero energy homes, information on whether incremental and program costs are conforming to expectations, and data indicating whether the energy savings estimated for the two performance tiers have actually occurred and been verified in practice, along with any other information necessary for the Commission to understand the progress and status of the program. Staff has also recommended that explanations and proposed solutions should be provided in cases where participation, incremental and program costs, or energy savings are significantly different than originally estimated.

25. Staff Recommendation. The proposed Energy Star Plus component would provide a second, and higher, tier of home performance within the existing Residential New Construction program, and would provide a framework for working toward net zero energy homes. Based on information from the Company, the higher savings from Energy Star Plus would be achieved on a

<sup>5</sup> PM = Particulate Matter. Particles less than 10 micrometers in diameter can reach the lungs. Larger particles can be irritants, but do not reach the lungs

1 cost-effective basis, with significantly improved energy savings for customers. Staff has  
2 recommended approval of the proposed new Energy Star Plus component of the Residential New  
3 Construction program.

4 CONCLUSIONS OF LAW

5 1. APS is an Arizona public service corporation within the meaning of Article XV,  
6 Section 2, of the Arizona Constitution.

7 2. The Commission has jurisdiction over APS and over the subject matter of the APS  
8 Application.

9 3. The Commission, having reviewed APS' Application and Staff's Memorandum  
10 dated February 17, 2010, concludes that it is in the public interest to approve the new Energy Star  
11 Plus component of APS' Residential New Construction Program discussed herein.

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ORDER

IT IS THEREFORE ORDERED that the new Energy Star Plus component of the Residential New Construction program be approved, as discussed herein.

IT IS FURTHER ORDERED that incremental costs not be reduced by federal tax credits for purposes of determining program cost-effectiveness or for purposes of determining the net benefits on which the Performance Incentive is based. This limitation applies to all programs and measures included in the APS DSM Portfolio.

IT IS FURTHER ORDERED that this Decision shall become effective immediately.

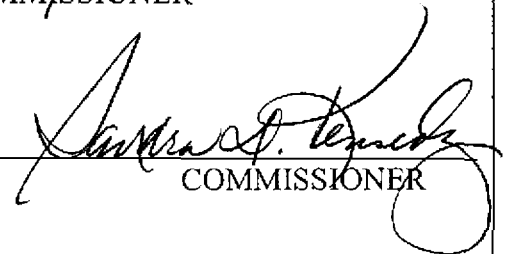
**BY THE ORDER OF THE ARIZONA CORPORATION COMMISSION**

  
CHAIRMAN

  
COMMISSIONER

  
COMMISSIONER

  
COMMISSIONER

  
COMMISSIONER

IN WITNESS WHEREOF, I, ERNEST G. JOHNSON, Executive Director of the Arizona Corporation Commission, have hereunto, set my hand and caused the official seal of this Commission to be affixed at the Capitol, in the City of Phoenix, this 17<sup>th</sup> day of MARCH, 2010.

  
ERNEST G. JOHNSON  
EXECUTIVE DIRECTOR

DISSENT: \_\_\_\_\_

DISSENT: \_\_\_\_\_

SMO:JMK:lhmm\MAS

1 SERVICE LIST FOR: Arizona Public Service Company  
2 DOCKET NO. E-01345A-09-0332

3 Mr. Thomas Mumaw  
4 Arizona Public Service Company  
5 Post Office Box 53999  
6 Phoenix, Arizona 85072-3999

7 Mr. Steven M. Olea  
8 Director, Utilities Division  
9 Arizona Corporation Commission  
10 1200 West Washington Street  
11 Phoenix, Arizona 85007

12 Ms. Janice M. Alward  
13 Chief Counsel, Legal Division  
14 Arizona Corporation Commission  
15 1200 West Washington Street  
16 Phoenix, Arizona 85007